

**EXPEDITED PROCEDURE – EXAMINING GROUP 2815**

**S/N 10/607,782**

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant:	Sabina J. Houle	Examiner:	Matthew Warren
Serial No.:	10/607,782	Group Art Unit:	2815
Filed:	June 27, 2003	Docket No.:	884.860US1
Title:	LIQUID SOLDER THERMAL INTERFACE MATERIAL CONTAINED WITHIN A COLD-FORMED BARRIER AND METHODS OF MAKING SAME		
Customer Number:	21186		

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**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

The applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request. This request is being filed with a Notice of Appeal.

Claims 1-33 have been advanced during the prosecution history of the application. Claims 1-30 are therefore pending. Claims 31-33 have been canceled and claims 19-26 have been withdrawn.

Claims 1, 6-12, and 15-18 (and claim 30 for the first time) stand finally rejected under 35 USC §102.

Claim 4 stands finally rejected under 35 USC §103.

Claim 27-29 stand finally rejected under 35 USC §103.

Applicant gratefully acknowledges the provisional indication of allowability of claims 2, 3, 5, 13 and 14.

**1) The Final Rejection, mailed 06/02/2006, was improper as claim 30 was first rejected after an RCE in said Final Rejection.**

Applicant respectfully requests the withdrawal of Final Rejection status, as claim 30 is examined on the merits for the first time in the Final Rejection, mailed 06/02/2006. The Pre-Appeal Panel may see from the Non-Final Office Action, mailed 12/15/2005, that claim 30 was neither listed as rejected, nor was claim 30 addressed in said Non-Final Office Action. Claim 30

was then first examined, on the merits, and indicated as rejected in the Final Office Action Summary. A cursory comparison of the rejections under 35 USC § 102(b) as being anticipated by DiGiacomo (both Office Actions at pages 2) shows that claim 30 is rejected in the Final Office Action, but claim 30 was first examined on the merits, only in the Final Office Action. The Examiner did not address Applicant's traversal of the improper Final Rejection. Withdrawal of Final Rejection status is proper and is therefore respectfully requested.

**2) Claims 1, 2, 4, 8-12, 14-18 and 20-27 were rejected under 35 USC § 102(a) as being anticipated by DiGiacomo (U.S. 6,085,831)**

Claim 1 exhibits four claim elements:

- a heat spreader including a die side and a heat-sink side;
- a container barrier disposed on the heat spreader die side, wherein the container barrier and the heat spreader form a recess upon the die side;
- a first channel through the container barrier, wherein the first channel is adjacent the heat spreader die side; and
- a first plug disposed in the first channel through the container barrier.

The Office Action first asserted that the heat spreader (53) met Applicant's heat spreader claim element. (Office Action at page 2). Next, the Office Action calls as the "container barrier out (sidewalls of the heat spreader) disposed on the heat spreader die side" and the structure (55) as "portions of the container barrier (55)" (Id). This interpretation ignores the distinct claim elements. Further, DiGiacomo teaches an "O-ring 40 can be placed on the periphery of chip 27 such that the horizontally extending flange 55 of the heat sink enclosure 53 *rests on the O-ring 40.*" (DiGiacomo at column 5, lines 39-43. Emphasis added). DiGiacomo regards the structures 40 and 55 to be separate and distinct, such that flange 55 cannot be "a container barrier disposed on the heat spreader die side" (Claim 1). A structure 55 cannot be disposed upon itself. In the Advisory Action (AA) it states the "examiner believes in the broadest sense, the container barrier is part of the heat spreader, but also is a separate portion of the heat spreader." Although reading a claim broadly may be done, every imaginable interpretation of a claim, particularly one that ignores distinct claim elements may not be done. The Examiner next states in the AA,

[i]n that case, the container barrier, being the sidewalls of the heat spreader is connected to the portion (top side of spreader 53) of the heat spreader which is the die side.

(AA). The “top side of spreader 53” certainly is not the die side. And this interpretation by the Office, ignores the limitation of the claim “a first channel through the container barrier, *wherein the first channel is adjacent the heat spreader die side*”. This limitation set forth in italics is not possible in DiGiacomo. The Examiner then takes a back-up position even “if that were not the case [Applicant agrees], the limitation of the claims would be satisfied if the fins (5) in fig. 1 of DiGiacomo were considered the heat sink ....” (Id). But claim 1 has no limitation of a heat sink structure. Consequently, this interpretation of claim 1 is outside the metes and bounds of the claim. This is made more pronounced when reading the limitation of the claim element of the “first channel through the container barrier, *wherein the first channel is adjacent the heat spreader die side*.” This reading of claim 1 is impossible to apply to DiGiacomo’s structure. The interpretation in the AA becomes further outside claim 1 where it puts the elements together and states the “container barrier and the heat spreader then (not necessarily in conjunction (sic) ) form a recess upon the die side.” DiGiacomo does not anticipate claim 1. Withdrawal of the rejection is respectfully requested. Applicant notes that claims 2-9 depend from claim 1 and are therefore also not anticipated by DiGiacomo. Withdrawal of the rejections is respectfully requested.

The following replies were not addressed in Applicant’s reply to the Office Action.

**Reply to Response to Arguments**

In the Response to Arguments, the Office Action failed to discuss the structural limitation of “a container barrier disposed on the heat spreader die side”. In the main body of the rejection, the Office called out structure 55 as “the container barrier (55)” (Office Action at page 2). The main body of the rejection also called out “a container barrier [as] (sidewalls of heat spreader)” (Office Action at page 2). But this represents two container barriers, not “a container barrier”.

When the Office takes the position of structure 55 as “*the container barrier (55)*” (Response to Arguments, page 6) it fails to include the limitation in claim 1 of a “first channel through the container barrier”.

When the Office takes the position of “sidewalls of heat spreader” as “*the* container barrier” (Office Action at page 2), it fails to include the limitation in claim 1 of “a container barrier disposed on the heat spreader die side”. This is because the “container barrier (sidewalls of heat spreader)” (Office Action at page 2) is disposed upon the structure 55. And it cannot be disposed upon itself.

Further, where the Office takes the position that the “channel that holds the plug is formed into the chamber of the heat sink, that first channel is adjacent the heat spreader die side”, this assumes the heat spreader die side is *the* container barrier, which fails, however, to be the limitation in claim 1 of “a container barrier disposed on the heat spreader die side”. Withdrawal of the rejections is respectfully requested.

**3) Claim 4 was rejected under 35 USC § 103(a) as being unpatentable over DiGiacomo et al. and further in view of Studebaker (U.S. 6,448,637 B1).**

Studebaker’s plug 30 is not disposed “adjacent the heat spreader die side” as required in claim 1, from which claim 4 depends. That Studebaker may teach a gas-permeable plug, does nothing to remedy what DiGiacomo fails to teach. Because claim 4 depends from claim 1, which Applicant respectfully asserts is not anticipated by DiGiacomo, all the claim limitations of claim 4 are not taught in the cited references.

**4) Claim 27-29 were rejected under 35 USC § 103(a) as being unpatentable over DiGiacomo et al. and further in view of Homer (U.S. 2002/0154483 A1).**

Regarding claim 27, it also has the limitations discussed above with respect to claim 1, that are not taught by DiGiacomo. Homer adds nothing to fill the void in the teachings of DiGiacomo. Because all the cited references, alone or in combination do not teach the limitations of claim 27, withdrawal of the rejection is respectfully requested. Applicant notes that claims 28 and 29 depend from claim 20 and are therefore also not rendered obvious by the cited references. Withdrawal of the rejections is respectfully requested.

Conclusion


Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (801) 278-9171 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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